"Board structure and corporate financial performance: empirical evidence from Vietnam's listed firms"

Phan Huu Viet

Abstract

In this study, we investigated the relationships between board structure and financial performance, limited to nonfinancial firms listed on the Vietnam Stock Exchange. First, we found that a dual leadership structure, where the CEO and Chairman positions are held by the same person, was positively associated with firm-level financial performance. Second, we found evidence inconsistent with previous empirical findings that board size is positively associated with significantly higher financial performance. In particular, we found that the proportion of outside directors was negatively correlated with financial performance after controlling for endogeneity. These results proved to be robust with other model specifications and estimation methods. If poor-performing firms nominate additional outside directors under pressure from dissatisfied shareholders, these results could be explained. Additionally, we found strong evidence indicating a positive linear relationship exists between ownership by the Chairman (a proxy for board ownership) and firm performance.

Keywords: board structure, corporate financial performance, corporate governance, Vietnam.
JEL classification: G32, G34, G39.

1. Introduction

The effects of board structure on firm-level performance are important to consider from a perspective of corporate governance. Berle and Means (1932) argue that conflicts of interest exist between managers (in this case, board members) and shareholders. Managers may pursue personal objectives which are not in alignment with the firm-value-maximization interests of shareholders. Morck et al. (1988), and McConnell and Servaes (1990) describe a non-monotonic relationship between managerial ownership and firm market valuation, showing that the two are positively related. However, the managers may become entrenched (they may pursue self benefits) when their ownership reaches a certain high level. Managerial

ownership then becomes an important governance mechanism, and it affects the classical manager-owner agency problem (Jensen and Meckling, 1976). Various governance initiatives, such as increasing the proportion of outside directors, are implemented to monitor the managers and mitigate the agency problem. However, the effectiveness of the board structure varies across different economic and regulatory environments (Vafeas and Theodorou, 1998). How various aspects of board structure affects firm-level performance in different contexts is still a question in need of empirical research.

The purposes of this study were to examine the relationship between firm financial performance and three specific features of board structure. In it, we studied nonfinancial firms publicly traded on the Vietnamese stock exchanges from 2006-2010. Previous studies on this topic generally used data from the US or other Western countries (Erickson, Park, Reising, & Shin, 2005; Short & Keasey, 1999; Vafeas & Theodorou, 1998, among others). Because we focused on an economy that is still emerging and in transition, such as that in Vietnam, we may provide additional stylized facts about the effects of board structure on firm-level performance in the specific research environment, and make valuable contributions to the current body of corporate governance literature. In this study, we used *dual leadership, board size*, and *percentage of outside board members* as the board structure features of interest. Three indicators were used to measure corporate financial performance: Return on Assets (ROA), Return on Equity (ROE), and Tobin's Q. We then empirically examined the relationship between each feature of the board structure and financial performance, as measured by these three ratios.

First, we found a significant positive relationship between dual leadership and financial performance in both univariate and multivariate tests. This result is consistent with those of Brickley, Coles, & Jarrell (1997) and Chen et al. (2008) who suggest that when the titles of CEO and Chairman are merged, a firm can enjoy quicker decision-making, lower information sharing costs, more efficient execution of business strategies, and more consistent leadership, contributing to the firm's success. Second, after controlling for causality, we found a significant positive relationship between board size and financial performance. This result agrees with those of Hillman, Cannella, and Paetzold (2000) and Van den Berghe and Levrau (2004) who argue that a larger board may provide the firm with greater resource capacities (expertise, knowledge, and skill) and more external synergies. Additionally, we found a significant negative relationship between the proportion of outside board members and financial performance. This relationship is weak after cluster robust OLS (ordinary least squares) regression. However, Erickson et al. (2005) suggest that endogeneity occurs when

poorly performing firms are pushed by unhappy investors to add outside directors. Therefore, greater board independence (a larger proportion of outside directors) does not always translate into positive effects on a firm's financial performance. We argue that the endogeneity issue may distort the relationship between the proportion of outside board directors and financial performance and that it leads to the weak result. To control for endogeneity, two-stage least squares (2SLS) regression of selected instrument variables was employed. Because the 2SLS results did not clearly prove the negative relationship, further research may be required to determine the effect of outside directors on a firm's financial performance in Vietnam. Apart from the main findings, we also found that chairman ownership is positively and linearly associated with financial performance.

This paper contributes to the current body of corporate governance literature as it relates to board structure in three important ways. First, this may be the initial empirical study examining the relationship between board structure and corporate financial performance among Vietnamese firms, as there are few business and management studies in this context. Second, given that Vietnam has an emerging and transitioning economy where corporate governance best practice is drawing attention from market regulators, investors, firm managers, and academia, our results can highlight stylized facts and implications for the country's market. Third, we controlled for the endogeneity issue, something not well documented in previous studies, and our results differed, finding that financial performance exhibited a positive relationship with board size but a negative one with the proportion of outside board members. This supports the argument that the effectiveness of corporate governance mechanisms varies depending on the institutional and regulatory environment.

This paper proceeds as follows: Section 2 reviews related literature and develops research hypotheses. Section 3 summarizes corporate governance and the institutional aspects applicable in Vietnam. Section 4 presents the sample collection and descriptive statistics. Sections 5 and 6 provide empirical results and robustness tests, respectively. Finally, Section 7 provides our conclusions and discusses the limitations of the study.

2. Related literature and hypothesis development

The relationship between board structure and firm-level performance is an important corporate governance subject and has been widely documented (Berle & Means, 1932; Brickley et al., 1997; Erickson et al., 2005; Jensen & Meckling, 1976; McConnell & Servaes, 1990; Morck, Shleifer, & Vishny, 1988, among others). Corporate governance reforms such

as recruiting additional outside directors have been carried out to monitor and supervise managers as well as reduce manager-shareholder conflicts. However, the effectiveness of these measures varies between different economic and regulatory environments (Vafeas & Theodorou, 1998). How firm-level performance in different contexts is affected by certain features of board structure, such as dual leadership, board size, and proportion of outside board directors, is still a hotly debated research question.

2.1 Dual leadership

It may be said that the splitting or combining of the titles of Chairman and CEO is a hotly debated topic among US firms. Previous studies disagree as to whether the dual leadership structure is advantageous and disadvantageous. Brickley et al. (1997) and Chen et al. (2008) suggest that quicker decision-making, lower information sharing costs, more efficient execution of business strategies, and consistent leadership are the potential benefits of dual leadership. Furthermore, the firm does not have to bear the cost of two compensation packages (Vafeas & Theodorou, 1998). Meanwhile, higher agency costs incurred by a lesser ability to monitor management (Fama & Jensen, 1983) and higher probability of abuse of power by the key leader are potential disadvantages of the dual regime. Additionally, dual leadership may lead to a lack of specialized knowledge and expertise (Vafeas & Theodorou, 1998). Empirical evidence from previous studies yields mixed results regarding the relationship between dual leadership and firm performance. Jackling and Johl (2009) conclude that there is no significant relationship between dual leadership and firm performance among Indian firms. However, Brickley et al. (1997) suggest that the costs of title separation are larger than the benefits for most large firms in the US, supporting the argument that dual leadership is good for the firm. Similarly, Dehaene, Vuyst, and Ooghe (2001) conclude that firm ROA is significantly higher among Belgian firms when the functions are merged. On the other hand, Rechner and Dalton (1991) show that firms implementing the combined titles demonstrate lower performance among firms in the UK. It can thus be said that in different institutional environments, it may be difficult to conclude whether separating or merging the two titles relates with higher firm performance and value. Based on the relatively larger number of previous studies that suggest positive effects of dual leadership, we hypothesize the relationship between dual leadership and firm performance as follows:

Hypothesis 1: Dual leadership is positively associated with firm performance.

2.2 Board size

Empirical studies on the topic of corporate governance have been designed to determine the optimal board size for a firm. Results seem to vary depending on the subject country. For instance, Jackling and Johl (2009) provide evidence that board size is positively associated with firm performance among Indian firms, an emerging country. In support of this idea, Van den Berghe and Levrau (2004) argue that a larger number of board members may provide the firm with greater resources such as expertise, knowledge, and skills. Similarly, Hillman et al. (2000) argue that there is a link between boards of directors with external environments (for instance, business networking, political connections etc…) that can become important resources to the firm.

There are a larger number of studies, particularly ones that focus on American and European firms, supporting the idea that there are negative effects of a larger board size. For example, Yermack (1996) suggests that there is an inverse relationship between board size and firm value as measured by Tobin's Q, as well as financial performance as measured by ROA and Return on Sales in large US firms. When it comes to European firms, Conyon and Peck (1998) suggest a negative relationship between board size and ROE. Consistent with these findings, the more recent studies of O'Connell and Cramer (2010) suggest a significant negative relationship between the number of board members and firm performance as measured by ROA and Tobin's Q among Irish firms. Interpreting their results, the authors relied on the argument of Jensen (1983) that the costs of a larger board size, such as poorer communication and less efficient decision-making, exceed the benefits, thus negatively impacting the firm. Given that (a) our study uses data from Vietnamese firms, in an emerging country with different institutional aspects (crony capitalism and political bribery) [(1)] compared to those of Western countries and (b) board size and performance are linked with various factors (the causality effect and unobservable determinants), we hypothesize the relationship between board size and performance as follows:

Hypothesis 2: Board size is positively associated with firm performance.

2.3 Outside board members

The roles of outside directors as a corporate governance mechanism to protect shareholder interests have long been debated (Erickson et al., 2005). The prominent role

(1) See article: "Vietnam must ditch state-sponsored crony capitalist" by David Pilling published in Financial Times, on May 25th, 2013.

of outside directors in the making of better decisions by the board is increasingly being recognized. Many countries have set minimum standards for outside director representation on the boards of listed firms (Dahya & McConnell, 2005). In addition to better decision-making, outside board members are linked to monitoring effectiveness because they represent the interests of stakeholders who are not involved in management. Supporting this view, Fama (1980) suggests that outside directors may compete in the labor market, which encourages them to have more effective monitoring roles than top managers. Their monitoring effectiveness is the key determinant for their reputation. However, empirical evidence of the roles of outside directors varies. For instance, Dahya and McConnell, who studied firms in the UK, suggest that the market has a positive view of the appointment of outside directors, and that boards with larger percentages of outside directors are linked to better decisions. Krivogorsky (2006) and O'Connell and Cramer (2010) agree, and show a positive relationship between firm performance and the percentage of non-executive directors on the board[(2)] among firms in Europe and Ireland, respectively. Furthermore, Dehaene et al. (2001) provide evidence that there is a positive relationship between the number of external directors and ROE in Belgian firms.

In contrast, there is empirical evidence showing a negative correlation between the proportion of outside directors and firm performance. For example, Jackling and Johl (2009) indicate that having outside directors does not always accompany good firm performance. Outside directors with multiple appointments appear to have an inverse impact on firm performance. In support of this, Erickson et al. (2005) reveal the issue of endogeneity when "poorly performing firms are pushed by unhappy investors to add outside directors". Therefore, greater board independence (a larger proportion of outside directors) does not always translate into positive effects on firm value. Given the fact that the proportion of outside directors on the board remains relatively small and there is high ownership (Viet, 2013) concentration in Vietnam's listed firms, we presume that the monitoring effectiveness of outside directors is limited. In addition, the endogeneity issue may also affect the relationship between the proportion of outside members and performance. We thus hypothesize the relationship between the proportion of outside directors and firm performance as follows:

---

(2) According to O'Connell and Cramer (2010), the term "outside" directors can be used interchangeably with "independent non-executive" or "non-executive" directors. Additionally, Dehaene et al. (2001) use term "external" directors instead of "outside" directors. We provide a definition of outside directors in Section 4.2.

Hypothesis 3: The proportion of outside directors is negatively associated with firm performance.

3. Background of corporate governance among Vietnam's listed firms

In 1986, Vietnam's economy began to shift from a centrally-planned mechanism to a market-oriented one, known as "Doi Moi." The Central Communist Party and its government, in the 6th National Congress, affirmed its commitment to develop Vietnam's economy in multiple sectors (including state, private, foreign direct investment, individuals, and household business sectors). The Vietnamese securities market was officially inaugurated after establishment of the Ho Chi Minh Securities Trading Center (HOSTC) in 2000 and then the Hanoi Securities Trading Center (HNX) in 2005. From 2003 to 2013, market capitalization was less than 20% of GDP, among the lowest in Asia. However, Vietnam's equity market is seen as one of the fastest growing investment destinations, supported partly by government privatization programs. As a result, at the end of 2011, there were nearly 800 companies listed in the two stock exchanges with a market capitalization of approximately 40% of GDP.

Hai and Nunoi (2008) summarize corporate governance in Vietnam as one regulated by the Enterprise Law enacted in 2006, a combination of French Company Law and Anglo-American Law. According to Enterprise Law, the mandatory internal governance structure of a publicly traded company includes four major components, namely, (a) shareholder's meetings, (b) a board of directors, (c) a CEO, and (d) a board of supervisors. Shareholder's meetings are attended by the most important decision-making body of a public company. A resolution made at the shareholder's meeting must be approved by at least 65% or 75% of the total voting shares of attending shareholders. Enterprise Law also stipulates that the board of directors will be selected at a shareholder's meeting and will consist of three to eleven members. The principle function of the board of directors is to manage the firm and supervise the performance of executive directors. Hai and Nunoi describe the board of supervisors as monitors of the board of directors, attending all their meetings but having no voting rights. However, the effect of the board of supervisors is still a long-debated topic in Vietnam because their role is depicted as relatively weak in some governance scandals in the country[(3)]. Furthermore, unlike many other countries where minimum standards for outside director representation on the boards of listed firms are regulated (Dahya & McConnell, 2005), there is no clear evidence of the

(3) The cases of Vinashin Corporation, Vinaline Corporation, and ACB Commercial Bank are well-known examples of weak corporate governance and insufficient board roles in Vietnam.

role and effect of independent outside directors in Vietnam, regardless of whether they are playing effective monitoring roles. Finally, according to Viet (2013), the ownership structure of Vietnam's listed firms is relatively concentrated. Generally, there is a controlling shareholder (the state and the founding family) who has significant voting power and influences all firm decisions. Thus, there is concern over the corporate governance of listed firms because they may lack effective monitoring by the second largest (or minority) shareholders. Therefore, board structure reform and corporate governance best practice are necessary for Vietnam's firms to meet international standards.

4. Sample and definition

4.1 Sample collection[4]

We compiled financial performance ratios of listed firms from Vietnam's two stock exchanges (HOSTC and HNX) from OSIRIS. From this source, we collected year-end financial accounting indicators including the Current Ratio, Sales, Assets, ROA, and ROE. The type of industry, based on the Global Industry Classification Standard (GICS), was also obtained from OSIRIS. Value of Assets (VND billion) was measured as a real value (non-tax). We then obtained year-end issues (31/12) of the Daily Securities Exchange Bulletins issued by each exchange to retrieve foreign ownership and government ownership data, as well as data on stock price and the number of outstanding shares for the listed firms. Stock price and the number of outstanding shares were used to calculate market capitalization. Last, governance information for listed firms such as year listed, firm age, and listing locations, were derived from the company profile on the websites of GBIC Company and BIDV Securities Company (BSC).

Our most important information included board size, proportion of outside board members, and the existence of a CEO and Chairman dual regime. In order to obtain these, we relied on the listed firm's annual reports. First, we collected the number of board members and used it as a proxy for board size. Then, we counted the number of members who were independent and non-executive (or not involved in management). The proportion of outside directors was calculated by dividing the number of outside directors by the total number of members. We further checked if the firm's CEO and Chairman was the same person to

(4) Thanks to the kind permission of Professor Katsuyuki Kubo, board structure data of this sample is partly derived from the database under a research project of Professor Katsuyuki Kubo's seminar, titled "Political connection, behavior and firm-level performance: empirical evidence from Vietnam".

identify dual leadership. It is important to note that some board information was lacking in the annual reports of some listed firms, leading to missing data in our sample. We also collected information on chairman ownership, relying on the ownership disclosure of the chairman in the annual reports[(5)]. Finally, our sample consisted of the nonfinancial listed firms, totaling 1425 firm-year observations between 2006 -2010.

Table 1: Definition of Variables

Variables	Definition
Financial performance	
ROA (%)	Return on Assets; the ratio of net income to total book value of assets.
ROE (%)	Return on Equity; the ratio of net income to total equity.
Tobin's Q	A proxy for firm value reflecting growth opportunities; the ratio of market capitalization to book value of total assets.
Board structure	
Dual_leadership	Dummy variable ranging from 0 (*the titles of CEO and Chairman are not merged*) to 1 (*titles are merged*)
All_board	Number of all board members, including inside and outside members.
Out_board	Number of independent outside directors.
Out/All_board	Proportion of outside directors on the board; the ratio of outside members to all board members.
Ownership	
Chairman_own (%)	A proxy for board ownership; the percentage of shares held by the firm chairman.
Foreign_own (%)	Collective ownership by all foreign investors.
Government_own (%)	Ownership by the government.
Other firm characteristics	
Asset (VND billion)	Book value of total assets.
Current_ratio (%)	A proxy for firm liquidity; the ratio of current liabilities to current assets.
Firm_age (years)	Years since the firm incorporated.
Years_listing (years)	Years since the firm was listed.
Stockex	Dummy variable ranging from 0 (*listed on the Hanoi Stock Exchange*) to 1 (*listed on the Ho Chi Minh Stock Exchange*).
Audit_big4	Dummy variable ranging from 0 (*the firm auditor is not one of the Big 4 international auditing firms*) to 1 (*the auditor is either PwC, Delloitte, Ernst & Young, or KPMG*).

(5) Therefore, if the chairman hides his/her real ownership by transferring his/her ownership to the third independent asset management companies, or if the chairman transfers the ownership to his/her relatives for different purposes, we are not able to have full ownership information. However, we argue that the ownership by the chairman published on firm annual reports is an important indication that reflects how the chairman as a shareholder shares the same interests with other owners of the firm.

4.2 Definitions of important terms

We employed three indicators as proxies for firm financial performance. We used ROA, the ratio of net income to total assets, and ROE, the ratio of net income to total equity as two performance ratios that reflect current financial performance. Furthermore, using the techniques of Oxelheim and Randoy (2003), Viet (2013), and Villalonga and Amit (2006), we used Tobin's Q to reflect growth opportunities or future prospects of the firm as an additional performance measure. Tobin's Q is considered a measure of market-based performance and is calculated as the ratio of market capitalization to book value of total assets. It has been widely used in the empirical studies of Chung and Pruitt (1994), Ferris and Park (2005), McConnell and Servaes (1990), O'Connell and Cramer (2010).

It is important to note that there are different definitions of the term *outside director*. According to O'Connell and Cramer (2010), the term can be interchangeable with *independent non-executive director or non-executive director*. Dehaene et al. (2001) favor the term *external director*. We use the term outside director and define it as a non-executive board member who is independent from the firm's daily operations and does not participate in management activities. The outside director is expected to play (a) a monitoring role for behaviors and responsibilities of the board, or (b) an advisory role for business strategies or operations of the firm.

4.3 Descriptive statistics

Table 2 indicates that the average ROA, ROE, and Tobin's Q for our sample was 7.65%, 16.24% and 0.87, respectively. The standard deviations for ROA and ROE (7.29 and 13.12, respectively) were relatively large, reflecting high variations in financial performance in the sample. Hai and Nunoi (2008) state that under Enterprise Law, the board of directors will consist of three to eleven board members. Our data show that all boards meet this requirement. The average board size is 5.57, much smaller than the average board size in the UK (8.50) (Dahya & McConnell, 2005) or Canada (10.68) (Erickson et al., 2005). In our sample, the average number of outside directors and the average percentage of outside directors are 0.93 and 16%, respectively. The median number of outside board members is 0, indicating that at least 50% of the listed firms do not have outside directors[(6)].

Unlike boards of directors in other countries, the number of outside members and the proportion of outside members in Vietnam are relatively small. These values are 4.00 and 50%

[(6)] It is also noticeable that more than 80% of listed firms in the sample have a board size of 5 members.

among UK firms (Dahya & McConnell, 2005), and 4.62 and 48% among Indian firms (Jackling & Johl, 2009). The lower values among Vietnamese firms may be due to a relatively smaller firm size (average asset value ≈ US$ 50 million) compared with the international norm, making it unreasonable to maintain a large board size. Moreover, the high ownership concentration (a controlling number of shares held by the state or the founding family) may prevent minority shareholders from nominating more board members or outside directors (Hai & Nunoi, 2008). Furthermore, the average chairman's ownership of 10% allows a significant influence on the firm. Lastly, 41% of the firms use dual leadership. This is higher than that in India (35%) (Jackling & Johl, 2009) but lower than that in the UK (66%) (Vafeas & Theodorou, 1998).

Table 2: Descriptive Statistics of the Sample

Variables	N	Min	Mean	Median	Max	SD
ROA (%)	1,425	-34.43	7.65	6.26	54.84	7.29
ROE (%)	1,425	-64.03	16.24	15.11	81.29	13.12
Tobin's Q	1,414	0.05	0.87	0.56	12.82	1.07
All_board	1,280	3.00	5.57	5.00	11.00	1.19
Out_board	1,016	0.00	0.93	0.00	7.00	1.44
Out/All_board	1,012	0.00	0.16	0.00	1.00	0.25
Chairman_own (%)	895	0.00	0.10	0.01	20.41	0.70
Dual_leadership	1,302	0.00	0.41	0.00	1.00	0.49
Foreign_own (%)	1,418	0.00	8.18	2.12	49.00	12.27
Government_own (%)	1,420	0.00	29.56	30.00	87.70	23.91
Asset (VND billion)	1,425	7.50	980.8	352.8	31686.9	2338.7
Current_ratio (%)	1,425	0.09	2.08	1.46	25.88	2.06
Firm_age (years)	1,418	0.00	19.59	16.00	56.00	13.16
Years_listing (years)	1,420	0.00	2.88	3.00	10.00	2.00
Audit_big4	1,425	0.00	0.06	0.00	1.00	0.23

Note. Asset, Firm_age and Years_listing will be in the natural logarithm form for regression.

4.4 Univariate tests

We compared firms that employed dual leadership with firms those that did not and found that the former performed better in terms of ROA and ROE. Results are shown in Panel A of Table 3. We also compared firms based on board size. We divided the sample into two groups: those that had a board size larger than or equal to the sample's median (5 members), and those that had a board size smaller than the sample's median. It is important to note that around 80% of our sample had a board size equal to the median. Panel B shows that the group with a large board size performed better in terms of ROA and ROE, using t-tests). We divided the sample according to their use of outside directors. Panel C shows that firms with outside

directors perform better than those without outside directors (but only in terms of ROA). Finally, we identified firms that experienced an increase in the number of outside directors and compared their performance at the year of this change to the prior year's performance. Panel D shows that performance, in terms of Tobin's Q, was lower one year before the change. This result is consistent with the argument that poor-performing firms may recruit more outside directors to improve monitoring effectiveness.

Table 3: Univariate Tests Comparing Performance of Different Firm Groups

Panel A: Effect of Dual Leadership

	Non-dual leadership			Dual leadership			Non-Dual vs. Dual	
	N	Mean	p50	N	Mean	p50	t-tests	Rank-sum tests
ROA (%)	762	7.20	6.02	539	8.35	6.86	-2.74***	-2.87***
ROE (%)	762	15.87	14.60	539	17.07	16.05	-1.60*	-1.73*
Tobin's Q	757	0.86	0.55	534	0.91	0.58	-0.79	-1.16

Panel B: Effect of Board Size

	Large board			Small board			Small vs. Large	
	N	Mean	p50	N	Mean	p50	t-tests	Rank-sum tests
ROA (%)	1246	7.79	6.29	33	5.48	5.12	-1.78**	-1.55
ROE (%)	1246	16.53	15.40	33	13.52	14.33	-1.30**	-0.94
Tobin's Q	1237	0.85	0.56	33	0.80	0.49	-0.28	0.15

Panel C: Effect of Outside Directors

	Without outside directors			With outside directors			Without vs. With	
	N	Mean	p50	N	Mean	p50	t-tests	Rank-sum tests
ROA (%)	614	7.18	5.77	398	7.76	6.50	-1.31*	-2.03**
ROE (%)	614	16.6	16.03	398	16.00	14.53	0.74	0.96
Tobin's Q	608	0.87	0.52	396	0.80	0.55	1.10	-1.15

Panel D: Effect of Addition of Outside Directors

	Year (t-1)			Year (t)			Year (t-1) vs. Year (t)	
	N	Mean	p50	N	Mean	p50	t-tests	Rank-sum tests
ROA (%)	32	8.54	6.86	33	8.09	7.10	0.19	0.41
ROE (%)	32	17.39	16.45	33	14.33	13.34	0.87	1.05
Tobin's Q	31	1.38	1.13	33	0.68	0.62	2.77***	2.67***

*p < .10. **p < .05. ***p < .01.

5. Estimation results

We used OLS regressions clustered at the firm level to examine the relationship between board structure and firm financial performance. The robust cluster regressions are expected to address problems of heteroskedasticity within firms in the estimations. In the regressions, each board feature was tested separately in the three specifications. Specification 1 examined the relationship between firm performance and dual leadership. Likewise, Specifications 2 and 3 examined the relationship between firm performance and board size and outside directors, respectively.

The estimation models are as follows:

$$\begin{aligned} Performance_{jt} = {} & \alpha + \beta_1 Dual\_leadership_{jt} + \beta_{2-4} Ownership\ variables_{jt} \\ & + \beta_{5-10} Firm\ characteristic\ variables_{jt} \\ & + \sum_{i=11}^{m} \beta_i\ Industry\ dummies_i + \sum_{i=m+1}^{k} \beta_i\ Year\ dummies_i + \varepsilon_{jt} \end{aligned} \quad (1)$$

$$\begin{aligned} Performance_{jt} = {} & \alpha + \beta_1 All\_board_{jt} + \beta_{2-4} Ownership\ variables_{jt} \\ & + \beta_{5-10} Firm\ characteristic\ variables_{jt} \\ & + \sum_{i=11}^{m} \beta_i\ Industry\ dummies_i + \sum_{i=m+1}^{k} \beta_i\ Year\ dummies_i + \varepsilon_{jt} \end{aligned} \quad (2)$$

$$\begin{aligned} Performance_{jt} = {} & \alpha + \beta_1 Out/All\_board_{jt} + \beta_{2-4} Ownership\ variables_{jt} \\ & + \beta_{5-10} Firm\ characteristic\ variables_{jt} \\ & + \sum_{i=11}^{m} \beta_i\ Industry\ dummies_i + \sum_{i=m+1}^{k} \beta_i\ Year\ dummies_i + \varepsilon_{jt} \end{aligned} \quad (3)$$

where $Performance_{jt}$ is the dependent variable representing financial performance (ROA, ROE, or Tobin's Q) of firm j in year t, α is an intercept, and ε_{jt} is the error term. "m" and "k" are the number of industry and year, respectively. β_1 in each specification is a coefficient of the relationship between each of the three features of the board structure and firm performance. The sign of this coefficient was then used to test the research hypotheses. Panels A, B, and C of Table 4 show the results of the relationship tests.

Panel A of Table 4 shows a positive relationship between dual leadership and firm financial performance. Models (1) and (2) are significant to the 5% and 10% levels, respectively. This result is consistent with our univariate tests as well as the findings of Brickley et al. (1997) and Chen et al. (2008) who suggest that when the titles of CEO and Chairman are merged, firms will benefit. Vafeas and Theodorou (1998) also point out that firms will reduce their compensation costs if they employ dual leadership. The potential benefits of the dual

regime are therefore determinant factors for the success of the firms. While Fama and Jensen (1983) suggest that there are higher agency costs and a higher probability of abuse of power, and Dehaene et al. (2001) and Vafeas and Theodorou (1998) contend that dual leadership may lead to a lack of specialized knowledge, we have shown, that in this instance, dual leadership is beneficial. There are some reported corporate governance scandals in Vietnam, but their detrimental effects are not evident in our sample. The positive impact of dual leadership presented a relatively surprising result in our Vietnamese context. Our results may support the view that leadership concentration is not necessarily a governance issue in an emerging economy such as that in Vietnam. Additionally, it can be said that the value of dual leadership depends on the institutional environment.

Panel B of Table 4 shows a positive correlation between board size and firm financial performance as measured by ROA at the 5% level in model (1). The relationship between either ROE or Tobin's Q and firm performance is not significant. This result is consistent with the findings of Jackling and Johl (2009) and Van den Berghe and Levrau (2004), who support the argument that a large board may provide the firm with greater resources and that having more directors on the board can become important to the firm (Hillman et al., 2000). We recognize that a causality problem may occur when examining the relationship between board size and performance. Because good-performing firms may attract investments (both domestic and foreign) by outside investors, new shareholders may nominate additions to the current board to improve monitoring effectiveness in alignment with their interests. Causality may lead to the relationship that we found, so we thus employed other estimation methods to further examine the relationship between board size and firm financial performance. These will be discussed in the latter part of this paper(7).

(7) From Table 4, we also obtain the result that firm age exhibits a positive relationship with firm financial performance. The result may support the hypothesis that older firms have more business experience that contributes to the firm success. It seems to be consistent with the country context that older firms may have stronger connections with local authority, hold better property location and enjoy safer land security, compared to the younger firms. The advantages may lead to better performance in older firms. In addition to this, we also find that years listed exhibits a negative relationship with firm performance. This result can be interpreted as firms listed more recently may have lower profiles than those listed in previous years because of more relaxed listing requirements applied in the stock exchanges after the world financial crisis (late 2008).

Table 4: OLS Examining the Relationship between Board Structure and Firm Performance

Panel A: Dual Leadership vs. Firm Performance

	Model (1)		Model (2)		Model (3)	
	ROA		ROE		Tobin's Q	
Dual_leadership	1.438**	(0.708)	2.426*	(1.236)	0.125	(0.078)
Chairman_own (%)	2.421	(1.827)	2.664	(3.107)	0.182	(0.278)
Government_own (%)	0.0623***	(0.017)	0.100***	(0.023)	0.001	(0.002)
Foreign_own (%)	0.143***	(0.038)	0.119*	(0.064)	0.015***	(0.005)
Asset (log)	-1.052***	(0.305)	1.008*	(0.557)	-0.038	(0.048)
Current_ratio (%)	0.577***	(0.190)	-0.154	(0.200)	0.080***	(0.023)
Firm_age (log)	1.201***	(0.459)	2.280***	(0.851)	0.007	(0.056)
Stockex	1.624**	(0.785)	-2.793*	(1.512)	0.215*	(0.127)
Years_listing (log)	-1.754**	(0.688)	-2.775**	(1.133)	-0.257***	(0.081)
Audit_big4	2.936	(1.809)	3.615	(3.026)	0.319*	(0.184)
Industry and year dummy	Yes		Yes		Yes	
Intercept	20.06***	(6.392)	-12.870	(11.410)	1.023	(0.971)
Observations	738		738		731	
R-sq	0.183		0.117		0.279	
Adjusted R-sq	0.166		0.099		0.264	

Note. Robust standard errors are in parentheses.
*p < .10. **p < .05. ***p < .01.

Panel B: Board Size vs. Firm Performance

	Model (1)		Model (2)		Model (3)	
	ROA		ROE		Tobin's Q	
All_board	0.596**	(0.298)	0.594	(0.486)	0.067	(0.054)
Chairman_own (%)	3.031	(1.896)	3.624	(3.228)	0.243	(0.290)
Government_own (%)	0.0662***	(0.017)	0.102***	(0.031)	0.001	(0.002)
Foreign_own (%)	0.130***	(0.040)	0.112*	(0.066)	0.013***	(0.005)
Asset (log)	-1.241***	(0.320)	0.749	(0.567)	-0.059	(0.047)
Current_ratio (%)	0.531***	(0.186)	-0.227	(0.197)	0.076***	(0.023)
Firm_age (log)	1.215***	(0.466)	2.289***	(0.863)	0.008	(0.057)
Stockex	1.727**	(0.818)	-2.769*	(1.546)	0.237*	(0.130)
Years_listing (log)	-1.982***	(0.676)	-3.131***	(1.136)	-0.288***	(0.084)
Audit_big4	3.115	(1.915)	3.930	(3.151)	0.346*	(0.191)
Industry and year dummy	Yes		Yes		Yes	
Intercept	21.31***	-6.241	-9.563	-11.43	1.129	-1.008
Observations	731		731		724	
R-sq	0.179		0.112		0.282	
Adjusted R-sq	0.162		0.094		0.267	

Note. Robust standard errors are in parentheses.
*p < .10. **p < .05. ***p < .01.

Panel C: Outside Director vs. Firm Performance

	Model (1)		Model (2)		Model (3)	
	ROA		ROE		Tobin's Q	
Out/All_board	-0.709	(1.841)	-2.402	(3.236)	-0.286*	(0.167)
Chairman_own (%)	7.501**	(3.126)	10.30*	(5.716)	0.798	(0.486)
Government_own (%)	0.0625***	(0.019)	0.104***	(0.034)	0.000	(0.003)
Foreign_own (%)	0.138***	(0.045)	0.127*	(0.075)	0.013***	(0.005)
Asset (log)	-1.167***	(0.322)	0.958	(0.594)	-0.057	(0.057)
Current_ratio (%)	0.425**	(0.167)	-0.260	(0.189)	0.070***	(0.021)
Firm_age (log)	1.224**	(0.476)	1.899**	(0.892)	0.026	(0.063)
Stockex	1.231	(0.867)	-3.255**	(1.626)	0.202	(0.142)
Years_listing (log)	-2.403***	(0.724)	-4.184***	(1.167)	-0.293***	(0.088)
Audit_big4	3.790*	-2.173	4.763	-3.466	0.366*	-0.218
Industry and year dummy	Yes		Yes		Yes	
Intercept	23.90***	-6.747	-8.313	-12.29	1.507	-1.135
Observations	614		614		608	
R-sq	0.179		0.129		0.278	
Adjusted R-sq	0.159		0.107		0.259	

Note. Robust standard errors are in parentheses.
*p < .10. **p < .05. ***p < .01.

Panel C of Table 4 reveals that that there is a negative association between the proportion of outside board members and firm financial performance as measured by Tobin's Q. This result is significant at the 10% level in model (3). In other words, firms with higher board independence exhibited poorer firm performance. The relationship is not significant between financial performance and ROA or ROE. In addition, it is not in line with the findings of Dehaene et al. (2001); Krivogorsky (2006); or O'Connell and Cramer (2010). It is consistent, though, with those of Jackling and Johl (2009) who showed that the proportion of outside directors does not always correlate with good firm performance and that outside directors with multiple appointments appear to have an inverse impact on firm performance. Additionally, our result supports the argument of Erickson et al. (2005) who believed that when firms experience a business downturn, they are pushed by concerned investors to add outside directors. A larger number of outside directors thus do not always translate to better

firm performance[8]. We argue that appointment of outside directors may be an outcome of endogenous decisions. The issue may distort the relationship between the proportion of outside board members and firm financial performance. Later part of this study will employ other estimation methods to address this issue.

6. Robustness checks

There are concerns of a causality relationship between board size or proposition of outside directors and firm performance. The causality problem may distort the signs of the coefficients in the regressions, and this can lead to a misunderstanding of the relationship between board structure and firm performance. We employed other estimation methods and model specifications to mitigate the issue and check the robustness of our research results.

6.1 Causality effect: board size and firm financial performance

We used 2SLS regression to control for the causality problem in the relationship between board size and firm financial performance. We relied on the argument that the recruitment of board members may depend on the performance results from previous years. In addition, foreign investors may begin to play more important roles in the corporate governance mechanism in Vietnam's market. The presence of minority foreign shareholders may be connected with better monitoring effects (Viet, 2013). We thus selected a one-year lag between firm financial performance and the collective ownership of foreign shareholders as the two instrument variables. Meanwhile, the board size is the endogenous variable of the 2SLS regression. Firm financial performance is measured by ROA, ROE, and or Tobin's Q. Since three features of board structure (dual leadership, board size and percentage of outside board members) were all included in the multivariate regression analysis in the previous studies, in this section, we thus test these features simultaneously using 2SLS estimation as the robustness check for the earlier results.

---

[8] There may be concern that poor-performing firms may appoint outside directors to enhance monitoring and gain advisory benefits. After a certain time since the appointment, the firms' performance may naturally move back toward their average (mean) level due to the "*mean reversion*" effects rather than the impacts of new outside directors. As our result shows negative outside director-performance relationship, the "*mean reversion*" issue can be ignored.

The 2SLS regression models are as follows:

$$All\_board_{jt} = \alpha + \beta_1 Performance_{jt-1} + \beta_2 Foreign\ ownership_{jt} + \beta_3 Dual\_Leadership_{jt} + \beta_4 Out/All\_board_{jt} + \delta_{jt} + \varepsilon_{jt}. \quad \text{(First-Stage Regression)}$$

$$Performance_{jt} = \alpha + \beta_1 Predicted\_All\_board_{jt} + \beta_2 Dual\_Leadership_{jt} + \beta_3 Out/All\_board_{jt} + \delta_{jt} + \varepsilon_{jt}. \quad \text{(Second-Stage Regression)}$$

where All_board_{jt} is the endogenous variable, $Performance_{jt-1}$ is the first instrument variable, a one-year lag value of financial performance (ROA, ROE, or Tobin's Q) of firm j in year t, $Foreign\ ownership_{jt}$ is the second instrument variable, the collective ownership of foreign investors, α is an intercept, δ_{jt} reflects other firm's characteristics, $Dual\_leadership_{jt}$ is a dummy variable,, Out/All_board_{jt} is the proportion of outside directors on the board of firm j at year t, and ε_{jt} is the error term.

Table 5 shows the results of the second-stage of the 2SLS (first-stage is not reported). We found a positive relationship between board size and firm financial performance as measured by ROA and Tobin's Q. Moreover, we found the results of Hausman tests (in terms of ROA and Tobin's Q) of the 2SLS to be significant. This leads us to conclude that board size is the endogenous variable, suggesting that the instrument variables were valid. This result is consistent with those of our cluster regression, indicating that board size exhibits a positive association with firm performance. Furthermore, Table 5 shows other results that align with those of earlier regressions, supporting two of our research hypotheses. Hypothesis 1, that dual leadership is positively associated with firm financial performance, was proven only in terms of ROE. Hypothesis 3, that the proportion of outside members is negatively associated with firm performance, was proven in terms of ROA and Tobin's Q. Table 5 also provides evidence that chairman ownership is positively associated with financial performance.

Table 5: 2SLS Regression for the Relationship between Board Size and Firm Performance

	Model (1)	Model (2)	Model (3)
	ROA	ROE	Tobin's Q
All_board	6.921***	3.028	0.344**
	(2.126)	(2.408)	(0.139)
Dual_leadership	1.232	2.467*	0.068
	(1.099)	(1.399)	(0.065)
Out/All_board	-4.814*	-4.944	-0.294**
	(2.548)	(3.838)	(0.143)
Chairman_own (%)	9.746**	11.76*	0.914***
	(4.625)	(6.462)	(0.320)
Government_own (%)	0.149***	0.149***	0.00691***
	(0.035)	(0.050)	(0.002)
Asset (log)	-2.035***	1.106	-0.131***
	(0.538)	(0.739)	(0.036)
Current_ratio (%)	0.345	-0.114	0.0468***
	(0.227)	(0.265)	(0.016)
Firm_age (log)	1.363**	1.832*	0.0836*
	(0.651)	(0.964)	(0.044)
Stockex	1.490	-4.515***	0.271***
	(1.231)	(1.645)	(0.085)
Years_listing (log)	-2.319**	-2.682**	-0.139**
	(1.059)	(1.300)	(0.068)
Audit_big4	3.549	6.614	0.419*
	(3.152)	(4.135)	(0.215)
Industry dummy	Yes	Yes	Yes
Year dummy	Yes	Yes	Yes
Intercept	0.841	-30.57**	0.701
	(10.400)	(14.460)	(0.752)
Observations	377	377	374
Wald Chi 2 (15)	44.03***	58.75***	108.00***
Tests of endogeneity			
Robust score Chi2 (1)	21.76***	1.73	13.00***
Robust F (1,354)	20.92***	1.55	12.79***

Note. Robust standard errors are in parentheses.
*p < .10. **p < .05. ***p < .01.

6.2 Endogeneity: outside directors and firm financial performance

We again employed 2SLS regressions to control for endogeneity when exploring the relationship between outside board members and financial performance. We relied on the three potential determinants of the proportion of outside director. First, we based on the argument presented by Erickson et al., (2005) that firms may be under pressure to recruit

outside board members by disappointed shareholders who want to improve monitoring effectiveness or have additional resources. Second, we argue that foreign investors play an important role in nominating outside board members because they may want to have a representative of their choosing on the board to monitor executives, supervise the board's behaviors, or to provide business strategic advisories for the board. Third and finally, whether any board member can be added may depend on current board size. It will be difficult for shareholders to get approval for more outside board members if the board is already large. Consequently, we selected three instrument variables: (a) a one-year lag value of firm financial performance, (b) collective ownership of foreign shareholders, and (c) a one-year lag of the size of the board. The board size is the endogenous variable of these 2SLS regressions which are as follows:

$$Out/All\_board_{jt} = \alpha + \beta_1 Performance_{jt-1} + \beta_2 Foreign\ ownership_{jt} + \beta_3 All\_board_{jt-1} + \beta_4 Dual\_Leadership_{jt} + \delta_{jt} + \varepsilon_{jt}. \quad \text{(First-Stage Regression)}$$

$$Performance_{jt} = \alpha + \beta_1 Predicted\_Out/All\_board_{jt} + \beta_2 Dual\_Leadership_{jt} + \delta_{jt} + \varepsilon_{jt}. \quad \text{(Second-Stage Regression)}$$

where Out/All_board_{jt} is the endogenous variable, $Performance_{jt-1}$ is the first instrument variable, a one-year lag of financial performance (ROA, ROE, or Tobin's Q) of firm j in year t, $Foreign\ ownership_{jt}$ is the second instrument variable, All_board_{jt-1} is the third instrument variable, the board size of the previous year, α is an intercept, δ_{jt} reflects other firm's characteristics, $Dual\_leadership_{jt}$ is a dummy variable, and ε_{jt} is the error term.

Table 6 shows the results of the second-stage of the 2SLS regression investigating the relationship between outside board members and financial performance (first-stage is not reported). It shows that after controlling for endogeneity, there is a negative relationship between outside board members and firm financial performance as measured by ROE. While the result is not significant with respect to ROA and Tobin's Q, it is consistent with our previous OLS regression, which indicated that outside board members exhibit a negative association with firm performance. We also used Hausman tests to determine whether board size is an endogenous variable. They suggest that the instrument variables were valid. However, the high magnitude of the coefficient of *Out/All_board* should be interpreted with caution. It is important to note that choosing an appropriate instrument variable is not an

easy task because of the lack of supporting theoretical evidence and sufficient data. This is a major problem when conducting 2SLS regressions in empirical studies (Ferris & Park, 2005). Therefore, further research on the effects of outside directors may be required. Furthermore, in Table 6, we also find results consistent with our research hypothesis, that dual leadership is positively associated with financial performance, but this is proven only with respect to ROA.

Table 6: 2SLS Regression for the Relationship between Outside Directors and Firm Performance

	Model (1)	Model (2)	Model (3)
	ROA	ROE	Tobin's Q
Out/All_board	9.472	-51.44**	-0.699
	(15.830)	(25.760)	(0.910)
Dual_leadership	2.097**	2.055	0.090
	(0.892)	(1.951)	(0.056)
Chairman_own (%)	7.047**	16.06*	0.826***
	(3.424)	(9.560)	(0.318)
Government_own (%)	0.0620***	0.079	0.001
	(0.024)	(0.055)	(0.001)
Asset (log)	-0.464	0.606	-0.0791**
	(0.514)	(1.052)	(0.039)
Current_ratio (%)	0.499**	-0.063	0.0552***
	(0.240)	(0.360)	(0.017)
Firm_age (log)	1.657***	2.282*	0.105***
	(0.581)	(1.338)	(0.041)
Stockex	0.067	-1.614	0.287***
	(1.542)	(2.979)	(0.105)
Years_listing (log)	-1.032	-1.436	-0.046
	(0.837)	(1.988)	(0.062)
Audit_big4	5.949**	8.807**	0.569***
	(2.676)	(3.595)	(0.165)
Industry dummy	Yes	Yes	Yes
Year dummy	Yes	Yes	Yes
Intercept	6.038	2.136	1.624*
	(11.700)	(23.560)	(0.887)
Observations	351	351	349
Wald Chi 2(14)	54.23***	48.33***	118.01***
Tests of endogeneity			
Robust score Chi2(1)	0.50	5.33**	0.45
Robust F (1, 333)	0.53	4.28**	0.40

Note. Robust standard errors are in parentheses. *p < .10. **p < .05. ***p < .01.

6.3 Other additional tests

We adjusted our performance indicators for the robustness checks. They were calculated by subtracting firm performance from the median of the performance of all firms in the same industry. For instance, if the ROE of firm A, a retailer, was 15% and the median ROE for the retail industry was 10%; firm A's adjusted ROA was 5% (15% minus 10%). In addition to the main results of the three features of board structure, the results of previous cluster robust OLS and 2SLS regressions also show that chairman ownership was positively associated with firm financial performance as measured by all three performance ratios.[(9)(10)] However, there is a concern that there may be a causality relationship between chairman ownership and firm financial performance. The chairman with insider information can better predict the firm's future profitability, growth, and perspective. Therefore, the chairman may increase ownership when firm financial performance is expected to be good. With the significant large ownership, the chairman might have voting decision influencing the board structure features. Recognize the potential influence of chairman's ownership and to control for causality, we used a one-year lag of the values of chairman ownership as well as adjusted ratios for the OLS regression. The unreported results are consistent with those of prior regressions and with our hypotheses that dual leadership is positively associated with firm performance in terms of Tobin's Q. They also show that the proportion of outside board members is negatively associated with firm performance in terms of Tobin's Q and that board size is positively (but weakly) associated with firm performance in terms of ROA. Finally, chairman ownership was consistently and positively correlated with firm performance.

We also found that there may be a positive correlation between board size and firm size. O'Connell and Cramer (2010) suggest that the relationship between board size and firm performance is influenced by firm size. Therefore, firm size can be an important determinant

---

(9) This result is consistent with those of previous literature (Short & Keasey, 1999; Vafeas & Theodorou, 1998) which suggests that when board members are also firm shareholders, they may share similar interests such as firm value maximization purposes with other shareholders. As a result, they are thought to be less likely to make decisions that are detrimental to shareholders. In addition, the result can be interpreted that the chairman with firm shares has a financial incentive to improve firm profitability by better supervising the operation of executives and enhancing decision-making effectiveness of the board.

(10) In our sample, 41% of the firms have the dual regime. Therefore, the chairman ownership in our sample, to some extent, reflects the CEO ownership or managerial ownership. We also tested the non-monotonic board ownership-performance relationship, but no significant result was found, which suggests that the relationship between board ownership and firm performance exists in linear in form.

of board size and can be used as an additional instrument variable in our 2SLS regressions. We duplicated the 2SLS regression described in Section 6.1. Firm size was defined as a third instrument variable. The endogenous variable remained board size. Table 7 shows that, in agreement with prior tests, (a) board size was positively associated with financial performance, (b) the proportion of outside directors was negatively associated with financial performance, in terms of ROE only, and (c) dual leadership was positively associated with financial performance. Results of the Hausman tests in terms of all the ratios suggest that board size is indeed endogenous variable[(11)]. In summary, even though the research results in prior tests and these additional tests do not show significant evidence for all three performance indicators at the same time, they provide consistent and sufficient evidence to confirm the direction of the relationship between board structure and firm-level performance.

Lastly, we also duplicated the regressions by using fixed effect and random effect models. There were no significant results found. In fact, we found that a large percentage of our sample did not experience changes in their board size or use of dual leadership throughout the 5-year study period. In addition, as aforementioned, there are missing data on the features of board structure of many firms, which makes it impossible to observe and assess the effects of board structure features in continuous years of our sample period. We thus argue that the lack of significance due to the missing data and little variation in the three features of board structure within any one firm. We do expect that the uses of OLS regressions clustered at the firm level are appropriate and control for the autocorrelation and heteroskedasticity within firms.

(11) However, Hansen tests (over-identifying tests) are not valid (similar to results of the 2SLS in Sections 6.1 and 6.2), suggesting that weak instruments may be selected. Therefore, further research and better selection of instruments are required to address the issue.

Table 7: 2SLS Regression for the Relationship between Board Size and Firm Financial Performance Using Additional Instrument (Firm Size)

	Model (1)	Model (2)	Model (3)
	ROA	ROE	Tobin's Q
All_board	3.434***	4.939**	0.119
	(1.271)	(2.206)	(0.091)
Dual_leadership	1.841**	2.135	0.103*
	(0.860)	(1.469)	(0.054)
Out/All_board	-2.201	-6.371*	-0.128
	(2.122)	(3.796)	(0.109)
Chairman_own (%)	7.535**	12.970*	0.776***
	(3.756)	(6.721)	(0.282)
Government_own (%)	0.087***	0.183***	0.003*
	(0.026)	(0.048)	(0.002)
Current_ratio (%)	0.584**	(0.244)	0.0622***
	(0.230)	(0.250)	(0.016)
Firm_age (log)	1.598***	1.703*	0.096**
	(0.540)	(1.010)	(0.039)
Stockex	-0.493	-3.439**	0.145**
	(0.959)	(1.671)	(0.061)
Years_listing (log)	-1.546*	-3.105**	-0.086
	(0.818)	(1.323)	(0.054)
Audit_big4	3.282	6.752	0.402**
	(2.410)	(4.419)	(0.166)
Industry dummy	Yes	Yes	Yes
Year dummy	Yes	Yes	Yes
Intercept	-20.15***	-19.240	-0.642
	(7.509)	(13.150)	(0.554)
Observations	377	377	374
Wald chi 2(14)	47.66***	47.93***	124.25***
Tests of endogeneity			
Robust score chi 2(1)	7.79***	5.53**	2.94*
Robust regression F(1,358)	8.06***	5.19**	2.98*

Note. Robust standard errors are in parentheses. *p < .10. **p < .05. ***p < .01.

7. Conclusion

This study examined the relationship between board structure (dual leadership, board size and outside board directors) and financial performance of nonfinancial firms on Vietnam's stock exchanges from 2006-2010.

We found that a positive relationship between dual leadership and firm financial performance, consistent with the results of Brickley et al. (1997) and Chen et al. (2008) who

suggest that under dual leadership, firms can enjoy quicker decision-making process, lower information sharing costs, more efficient execution of business strategies, and more consistent leadership. After controlling for causality, we found a positive relationship between board size and firm financial performance, consistent with the results of Hillman et al. (2000) and Van den Berghe and Levrau (2004) who argue that a larger board may provide the firm with greater resources and more combined synergies. After controlling for endogeneity, we also found that there is a negative relationship between the proportion of outside board members and firm financial performance, consistent with the results of Erickson et al. (2005) who suggest that poorly performing firms are pushed by concerned shareholders to increase the proportion of outside directors to improve monitoring effectiveness and bring more external resources to help them turn their performance around. Greater board independence does not always translate into a positive relationship with firm financial performance; however, it is vital to note that our results show a weak relationship. The effects of outside directors on firm performance need to be examined further using more sufficient data and appropriate estimation techniques. In addition to the main findings, we found strong evidence of a positive linear relationship between chairman ownership (a proxy for board ownership) and financial performance of the firm.

Given the fact that Vietnam has an emerging and transitioning economy where corporate governance best practice is drawing attention from market regulators, investors, firm managers, and academia, the research results here can bring more stylized facts and implications for the country's markets. Some of our results are not consistent with those of previous studies on the relationships between financial performance and board size or outside board members, supporting the argument that the effectiveness of corporate governance mechanisms varies depending on the institutional and regulatory environment. In order to facilitate further research, the identity of outside board directors, expertise of each board member, full data of board structures, other board's characteristics (frequency of the board meetings and attendance of outside board members) and insightful firm case studies of the board's activities are needed. Furthermore, more advanced estimation techniques (for instance, Difference-in-Difference, appropriate matching methods) are also required to examine financial performance of the firms before and after the outside (inside) directors' appointment events.

***Acknowledgement:**

I would like to especially thank the anonymous referee for the very helpful comments.

I would also like to express my deepest gratitude to Professor Katsuyuki Kubo for his detailed guidance and valuable comments during the research process. I also benefited from discussions of the participants at the Doctoral Student Workshop, Graduate School of Commerce, Waseda University. All errors and omissions remain my sole responsibility.

References

1. Berle A., & Means C. (1932). *The modern corporation and private property*. New York: Macmillan.
2. Brickley J., Coles J., & Jarrell G. (1997). Leadership structure: separating the CEO and Chairman off the board. *Journal of Corporate Finance, 3*, 189-220.
3. Chen C, Lin J & Yi B. (2008). CEO duality and firm performance: an endogeneity issue. *Corporate Ownership and Control*, 6:1, 58-64.
4. Chung K., & Pruitt S. (1994). A simple approximation of Tobin's Q. *Financial Management, 23*(3), 70-74.
5. Conyon M., & Peck S. (1998). Board size and corporate performance: evidence from European countries. *European Journal of Finance, 4*, 291-304.
6. Dahya J., & McConnell J. (2005). Outside directors and corporate board decisions. *Journal of Corporate Finance, 11*, 37-60.
7. Dehaene A., Vuyst V., & Ooghe H. (2001). Corporate performance and board structure in Belgian companies. *Long Range Planning, 34*, 383-398.
8. Erickson J., Park Y., Reising J., & Shin H. (2005). Board composition and firm value under concentrated ownership: the Canada evidence. *Pacific-Basin Finance Journal, 13*, 387-410.
9. Fama E. (1980). Agency problem and theory of the firm. *Journal of Political Economy*, 1155-1177.
10. Fama E., & Jensen F. (1983). Separation of ownership and control. *The Journal of Law and Economics, 26*, 301-325.
11. Ferris S., & Park K. (2005). Foreign ownership and firm value: evidence from Japan. *Advances in Financial Economics, 11*, 1-29.
12. Hai B., & Nunoi C. (2008). Corporate governance in Vietnam: a system in transition. *Hitotsubashi Journal of Commerce and Management, 42*(1), 45-66.
13. Hillman A., Cannella A., & Paetzold. (2000). The resource dependence role of corporate directors: strategic adaption of board composition in response to environmental change. *Journal of Management Studies, 37*, 235-255.
14. Jackling B., & Johl (2009). Board structure and firm performance: evidence from India's top companies. Corporate Governance: *An International Review, 17*(4), 492-509.
15. Jensen M. (1993). The modern industrial revolution, exit and the failure of internal control systems. *Journal of Finance, 48*, 831-880.
16. Jensen M., & Meckling W. (1976). Theory of the firm: managerial behavior, agency costs, and ownership structure. *Journal of Financial Economics, 3*, 305-360.
17. Krivogorsky V. (2006). Ownership, board structure and performance in Europe. *The International Journal of Accounting, 41*, 176-197.

18. McConnell J., & Servaes H. (1990). Additional evidence on equity ownership and corporate value. *Journal of Financial Economics, 27*, 595-612.
19. Morck R., Shleifer A., & Vishny R. (1988). Management ownership and market valuation: an empirical analysis. *Journal of Financial Economics, 20*, 293-315.
20. Oxelheim L., & Randoy T. (2003). The impact of foreign board membership on firm value. *Journal of Banking and Finance, 27*, 2369-2392.
21. O'Connell V., & Cramer N. (2010). The relationship between firm performance and board characteristics in Ireland. *European Management Journal, 28*, 387-399.
22. Short H., & Keasey K. (1999). Managerial ownership and the performance of firms: evidence from the UK. *Journal of Corporate Finance, 5*. 79-101.
23. Vafeas N., & Theodorou E. (1998). The relationship between board structure and firm performance in UK. *British Accounting Review, 30*, 383-407.
24. Van den Berghe., & Levrau A. (2004). Evaluating boards of directors: what constitutes a good corporate board? *Corporate Governance: An International Review, 12*, 461-478.
25. Viet P. (2013). Foreign ownership and performance of listed firms: evidence from an emerging economy. *The Bulletin of the Graduate School, 77*, 285-310.
26. Villalonga B., & Amit R. (2006). How do family ownership, control and management affect firm value? *Journal of Economics, 80*, 385-417.